



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,691	11/25/2003	Per Skillermark	4147-52	3042

23117 7590 01/17/2007
NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

DOAN, KIET M

ART UNIT	PAPER NUMBER
----------	--------------

2617

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/720,691

Applicant(s)

SKILLERMARK ET AL.

Examiner

Kiet Doan

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. **Claims 1, 6, 11** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Consider **claims 1, 6, 11** the word "**about**" renders the claim indefinite because the word "**about**" does not positively identify the claimed limitation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-2, 6-7, 11, 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu (Pub. No. 2004/0081121) in view of Salmenkaita et al. (Pub. No. 2006/0160542).

Consider **claims 1, 6, 11**. Xu teaches an interference cancellation method for a mobile station in a radio cell of a CDMA cellular system, including the steps of
maintaining a list of intracell interferers to the mobile station;
detecting intercell interferers to the mobile station

Art Unit: 2617

adding each detected intercell interferer that fulfils a predetermined selection criterion to said list (Abstract, Paragraphs [0013-[0015] teach cancel or minimize interference). Xu teach the limitation of claims as discuss **but silent on** and

performing, based on information about the interferers in said list, interference cancellation for all interferers in said list.

In an analogous art, Salmenkaita et al. teaches " Method and system for allocationg channels in a cellular communication network". Further, **Salmenkaita teaches** and

performing, based on information about the interferers in said list, interference cancellation for all interferers in said list (Abstract, Paragraphs [0013-0017], [0024-0028]).

Therefore, it would have been obvious at the time that the invention was made that person having ordinary skill in the art to modify Xu and Salmenkaita system, such that maintaining a list of intracell interferers and detecting intercell interferers performing, based on information about the interferers in said list, interference cancellation for all interferers in said list to provide means for distinguish and eliminated the interference signal to make better connection.

Consider **claims 2, 7, 12**. Salmenkaita teaches the method of claim 1, including the step of using handover related information available in the mobile station for detecting intercell interferers (Paragraphs [0005], [0024-0026]).

Consider **claims 3, 8, 13**. Salmenkaita teaches the method of claim 1, including the steps of measuring received interfering signal power from intercell interferers using the same frequency band as the mobile station; adding to said list only intercell interferers having a measured received interfering signal power that exceeds a predetermined power level (Paragraphs [0024-0029]).

3. **Claims 4, 9, 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu (Pub. No. 2004/0081121) in view of Wong et al. (Pub. No. 2003/0002490).

Consider **claims 4, 9, 14**. Xu teaches the limitations of claims as discuss **but silent on** the method of claim 1, including the steps of determining the cross-correlation between a desired signal and signals from intercell interferers; adding to said list only intercell interferers having a determined cross-correlation that exceeds a predetermined cross-correlation level.

In an analogous art, Wong teaches "Directed maximum ratio combining methods and system for high data rate traffic". Futher, **Wong teaches the** method of claim 1, including the steps of determining the cross-correlation between a desired signal and signals from intercell interferers; adding to said list only intercell interferers having a determined cross-correlation that exceeds a predetermined cross-correlation level (Abstract, Paragraphs [0016-0020]).

Therefore, it would have been obvious at the time that the invention was made that person having ordinary skill in the art to modify Xu and Wong system, such that determining the cross-correlation between a desired signal and signals from intercell

Art Unit: 2617

interferers; adding to said list only intercell interferers having a determined cross-correlation that exceeds a predetermined cross-correlation level to provide means for increase the data transmission in wireless communication without interference.

4. **Claims 5, 10, 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu (Pub. No. 2004/0081121) in view of Frank et al. (Pub. No. 2003/0035469).

Consider **claims 5, 10, 15**. Xu teaches the limitations of claims as discuss **but silent on** the method of claim 1, including the following steps for each intercell interferer to be included in said list: determining a channel estimate; determining a channelization code; determining a scrambling code; forwarding the determined channel estimate, channelization code and scrambling code to a joint detection algorithm used by all interferers in said list.

In an analogous art, Frank teaches "Linear minimum mean square error equalization with interference cancellation for mobile communication forward links utilizing orthogonal codes covered by long pseudorandom spreading codes". Further, Frank teaches the method of claim 1, including the following steps for each intercell interferer to be included in said list: determining a channel estimate; determining a channelization code; determining a scrambling code; forwarding the determined channel estimate, channelization code and scrambling code to a joint detection algorithm used by all interferers in said list (Abstract, Paragraphs [0008-0009], [0017-0020], [0029-0032]).

Art Unit: 2617

Therefore, it would have been obvious at the time that the invention was made that person having ordinary skill in the art to modify Xu and Frank system, such that determining a channel estimate; determining a channelization code; determining a scrambling code; forwarding the determined channel estimate, channelization code and scrambling code to a joint detection algorithm used by all interferers in said list to provide means for increase the capacity of transmission data and cost effective implement.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiet Doan whose telephone number is 571-272-7863. The examiner can normally be reached on 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph H. Feild can be reached on 571-272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2617

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Kiet Doan
Patent Examiner



JOSEPH FEILD
SUPERVISORY PATENT EXAMINER